

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 January 2003 (09.01.2003)

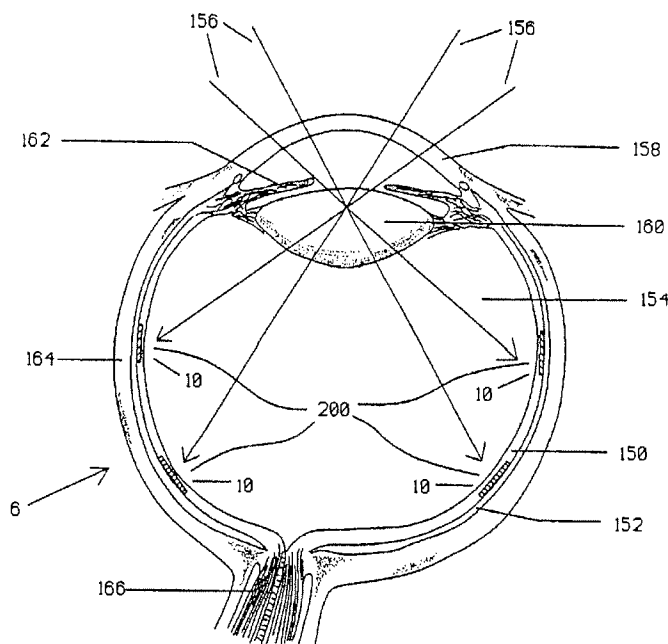
PCT

(10) International Publication Number
WO 03/002190 A3

- (51) International Patent Classification⁷: **A61N 1/08**
- (21) International Application Number: PCT/US02/20557
- (22) International Filing Date: 27 June 2002 (27.06.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/301,877 29 June 2001 (29.06.2001) US
10/056,793 23 January 2002 (23.01.2002) US
- (63) Related by continuation (CON) or continuation-in-part (CIP) to earlier applications:
US 60/301,877 (CON)
Filed on 29 June 2001 (29.06.2001)
US 10/056,793 (CON)
Filed on 23 January 2002 (23.01.2002)
- (71) Applicant (for all designated States except US): **OPTO-BIONICS CORPORATION** [US/US]; 191 Palamino Place, Wheaton, IL 60187 (US).
- (72) Inventors; and
(75) Inventors/Applicants (for US only): **CHOW, Alan, Y.** [US/US]; 191 Palamino Place, Wheaton, IL 60187 (US).
CHOW, Vincent, Y. [US/US]; 7980 Kingsbury Drive, Hanover Park, IL 60103 (US).
- (74) Agent: **GENIN, Kent, E.**; Brinks Hofer Gilson & Lione, P.O. Box 10087, Chicago, IL 60610 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EF, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent

[Continued on next page]

(54) Title: METHODS FOR IMPROVING DAMAGED RETINAL CELL FUNCTION



(57) Abstract: Methods of using electrical stimulation (10) by itself or in conjunction with growth factors to treat and prevent visual loss due to choroidal, retinal pigment epithelial and/or neuroretinal cell degeneration and dysfunction are presented.

WO 03/002190 A3



(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:
26 June 2003

Published:

— *with international search report*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/20557

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61N 1/08
US CL : 607/54

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 607/50, 53, 54, 116
623/6.03

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,944,747 A (GREENBERG et al) 31 August 1999, Abstract and figure 4.	1-7, 12, 15, 22, 28-38, 40, 43, 56, 57, 78-84, 89, 92, 99, 105-115, 117, 120, 127, 133-135

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"I," document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 30 AUGUST 2002	Date of mailing of the international search report 01 MAY 2003
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 306-4520	Authorized officer FRANCES P. OROPEZA Telephone No. (703) 605-4355

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/20557

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	US 6,393,327 B1 (SCRIBNER) 21 May 2002, Abstract and figure 3A.	8-11, 13, 16-20, 24, 39, 41, 44-48, 50, 52, 58, 62, 67, 71-72, 77, 85-88, 90, 93-97, 101, 116, 118, 121-125, 129
Y	US 4,628,933 A (MICHELSON) 16 December 1986, Abstract and figure 1B.	21, 49, 59-61, 63-66, 68-70, 73-76, 98, 126, 136-138
Y	US 5,109,844 A (deJUAN, JR. et al) 05 May 1992, Abstract and figure 3.	14, 23, 25-27, 42, 51, 53-55, 91, 100, 102-104, 119, 128, 130-132